

REMARKS

Claims 1-4, all the claim pending in the application, stand rejected. Claim 1 is amended.

Claim Rejections – 35 USC 102(b)

Claims 1-4 are rejected under 35 USC 102(b) as being anticipated by Voss et al (DE 199 36 711). The German reference corresponds to USP 6,644,623 and has been used for analyzing the rejection. This rejection is traversed for at least the following reasons.

The present invention as embodied in an exemplary but non-limiting structure illustrated in Fig. 1 concerns a proportional solenoid valve having a solenoid main body including a coil 1, a valve seat member 15 having a seat portion 15b, a valve element 14 that is displaced in accordance with a current applied to the coil so as to be brought into and out of contact with the seat portion 15b, and a valve guide portion 8c that is arranged coaxially with the seat portion 15b and guides the displacement of the valve element 14, The embodiment also has a housing 16 that is attached to the solenoid main body so that a space 16 is formed between the housing and the valve seat member 15, and forms an input/output flow path 15c of a fluid. A seal member that is made of an elastic material is provided in the space.

Notably, in the embodiments of each of Figs. 1-3, the valve element 14 is moveable within and guided by the valve guide portion 8c, 21, 22. The valve element 14 is not held or otherwise constrained by the guide in the direction of movement to open and close the orifice at the valve seat 15b, 21a, 23b, leading to the input/output passage 15c, 21b, 23c.

Voss

The Examiner takes the position that Voss discloses in Fig. 2a a solenoid valve having a main body, including a coil, valve seat member 7 having a seat portion and a valve element 4 that is displaced in accordance with a current applied to the coil. The Examiner also asserts that Voss teaches a valve guide portion 3(1) that is arranged coaxially with the seat portion and guides the displacement of the valve element. Finally, the Examiner looks to a housing 6 attached to the solenoid main body so that a space is formed between the housing and the valve seat member, and forms an input/output path. A seal member 28 in the form of an O-ring is seen

as the claimed elastic member in the space. The Examiner's analysis is flawed in the following respects.

First, the valve element 4 is not moveable within the valve guide portion 3(1), in the manner claimed. As is clear from the illustration in Fig. 2a and as explained in the specification at col. 2, lines 26-29, the valve closing element 9 is formed as a steel ball that is encompassed (clearly fixedly secured) within the valve tappet 4. The ball, acting as the valve closing element 9, is not moveable within any valve guide portion.

The Examiner appears to take the position that the tappet 4 in combination with the secured ball 9 is the claimed "valve closing element" and that the housing wall 3(1) is the valve guide portion. This correspondence is improper, given the significant structural differences between a tappet/ball combination and Applicant's valve element.

Nonetheless, in order to advance the prosecution in this case, Applicant has amended claim 1 to specify the "moveable member" that includes a rod 10 and plunger 11 and is contactable with the valve element and is moveable in response to operation of the coil. While Voss does have a rod, it is integrated with the ball 9 and does not have the structure now claimed. Applicant's specification of a moveable member separate from the ball type valve closing element will preclude the correspondence between Voss and the claimed invention, as amended. The term "contactable" would distinguish over the integrated ball and rod structure of Voss, as the two components are always in contact, as disclosed in the reference.

Finally, we note that the rejection of claim 4 as being anticipated should be overcome by the Examiner's admission that "Voss lacks an integrally formed valve guide and valve seat," which is stated in connection with the rejection under 35 USC 103.

Claim Rejections – 35 USC 103

Claim 4 is rejected under 35 USC 103 as being unpatentable over Voss et al (DE 199 36 711). The German reference corresponds to USP 6,644,623 and has been used for analyzing the rejection. This rejection is traversed for at least the following reasons.

Amendment Under 37 C.F.R. § 1.111
10/678,307

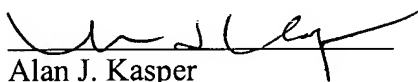
By the Examiner's own admission, Voss does not teach an integrated structure. Nothing in Voss, the only applied reference, would render the feature obvious. Thus, the rejection must be overcome.

Applicant does note, however, that the Examiner has mentioned, but not applied, the reference to Mayer (DE 199 10 207) corresponding to USP 6,637,724. The Examiner observes that element 8 is an integrally formed valve seat and valve guide. However, even if applied, Mayer would not remedy the deficiency of Voss with respect to the recitation in claim 1 of a separate rod or a ball shaped valve element.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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